Onboarding a Cloud Virtual Machine

This chapter contains the following sections:

About Onboarding Cloud Virtual Machines

Intercloud Fabric enables you to onboard virtual machines from provider clouds to Intercloud Fabric. The onboarding process occurs directly in the provider cloud; you do not have to bring virtual machines back to the private cloud. Onboarding cloud virtual machines enables you to:

- Manage all virtual machines from a single location in Intercloud Fabric.
- Use the enterprise IP address space.
- Use all of the Intercloud Fabric security mechanisms for provider instances.
- Use the enterprise infrastructure and management framework, such as LDAP or DNS, by extending private subnets to the provider cloud.

Guidelines and Limitations

- Onboarding provider cloud VMs to Intercloud Fabric is only supported on Amazon Web Services EC2 Classic and Amazon Web Services EC2 VPC.
- The onboarding process applies within a region; the virtual machine and destination VDC are in the same region.
- After the virtual machine is onboarded to Intercloud Fabric, the virtual machine is assigned a private IP address. You must manually update any applications that explicitly used the provider's IP address before onboarding if the applications are expected to communicate with the newly assigned private IP address.
- Windows virtual machines can be onboarded but cannot be moved to the private cloud.

- Linux virtual machines with nonpartitioned disks that can be onboarded cannot be moved to the private cloud.
- Linux virtual machines that are expected to move back to the private cloud must be referred to by using persistent names (that is, by UUID or label) in /etc/fstab instead of nonpersistent names, such as /dev/xvda. For example:
  - In the grub configuration file, the kernel parameter root must refer to the root partition using a label or ID.

    Example of a label/ID in grub.conf:
    ```
    kernel /boot/vmlinuz-2.6.32-431.29.2.el6.x86_64 console=ttyS0
    ro root=UUID=9996863e-b964-47d3-a33b-3920974fdbd9
    rd_NO_LUKS  KEYBOARDTYPE=pc KEYTABLE=us
    LANG=en_US.UTF-8 xen_blkfront.sda_is_xvda=1
    console=ttyS0,115200n8 console=tty0 rd_NO_MD SYSFONT=latarcyrheb-sun16
    crashkernel=auto rd_NO_LVM rd_NO_DM
    ```
  - In the file system configuration file `/etc/fstab`, the first column should have a label or ID instead of a partition name.

    Example of a label/ID in fstab:
    ```
    UUID=9996863e-b964-47d3-a33b-3920974fdbd9 /
    ext4
    defaults        1 1
    ```
- For Amazon VPCs, onboarding is supported only if the onboarded VM is on the same VPC as an Intercloud Fabric cloud. Also, onboarding is not supported for an AWS instance that is linked to the VPC using ClassicLink.
- AWS instances on nondefault VPCs cannot be onboarded to AWS EC2 Classic-based Intercloud Fabric clouds.

Prerequisites

- Ensure that you have the credentials for the virtual machines that you will onboard to Intercloud Fabric.
- Ensure that you have updated the following for the onboarded virtual machine from the provider console so that Intercloud Fabric can communicate with the virtual machine:
  - Change the security group of the virtual machines in Amazon EC2 VPC to the security group of the virtual machine created by Intercloud Fabric.
  - Add inbound rules for UDP and TCP ports 6644 and 6646, and TCP port 22 to the security groups of the virtual machines in Amazon EC2 Classic. The security groups should match the security group of the virtual machine created by Intercloud Fabric.
- If a Windows VM firewall or IP tables are configured in the provider cloud, ensure that the required ports are open.
- Ensure that you have the required utilities, such as WinSCP, to copy the onboard package to the onboarding Windows virtual machine in the provider cloud.
- To prepare for onboarding a Windows VM, complete the following steps:

  1 Copy the zipped bundle on to the Windows VM.

  2 Create a folder named `Cisco` under c:\Program Files (x86)\.

3 Extract the contents of the zipped bundle into the `Cisco` folder.

4 Double-click the `icf_onboard-*` application executable.

The VM is now ready for onboarding in Intercloud Fabric.

- Ensure that you have already installed SSH on Linux virtual machines.
- Collect the following information for the virtual machine you are onboarding:
  - Instance ID
  - OS version
  - Architecture (32-bit or 64-bit)
  - CPU
  - Memory
  - Disk size

Onboarding Cloud Virtual Machines to Intercloud Fabric

Use this procedure to onboard cloud virtual machines to Intercloud Fabric. You can onboard only one virtual machine at a time to Intercloud Fabric.

Note This software release supports onboarding cloud virtual machines to Intercloud Fabric only on Amazon Web Services (AWS) EC2-Classic and Amazon Web Services (AWS) EC2-VPC.

Onboarding cloud virtual machines to Intercloud Fabric includes the following steps:

1 Download the package to the location from which it will be copied into the cloud VM.

2 Copy and install the package into the cloud VM.

3 Onboard the VM to Intercloud Fabric.

Procedure

Step 1 Log in to Intercloud Fabric.

Step 2 Download the package as follows:

a) Choose **Intercloud** > **Compute**.
b) In the **Compute** window, select the private cloud and then click the **VM** tab.
c) In the **VM** window, select the VM and click **Onboard package**.
d) To onboard a Linux VM, click the **Download** button for the Linux package. To onboard a Windows VM, click the **Download** button for the Windows package.
e) Download the onboard package to your local machine.

Step 3 Copy and install the onboard package as follows:

a) Log in to the VM in the provider cloud using WinSCP or SSH and copy the downloaded onboarding package on to the VM.
See https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/AccessingInstances.html.

b) Enter the following commands to verify that the package has been downloaded to the VM:
cd /root

ls

c) Enter the following command to extract the package onto a location in the virtual machine:
unzip *filename*

d) Enter the following command to install the package:
icf_onboard.sh

Example:
Output for a Linux VM package installation:

```
[root@ip-10-0-0-161 ec2-user]# cd /tmp/
[root@ip-10-0-0-161 tmp]# ls
lnx_ob_bundle_2.2.67.tgz
[root@ip-10-0-0-161 tmp]# tar -xzvf lnx_ob_bundle_2.2.67.tgz
authorized_keys
csw
ica-2.2.67.centos6_2.i686.rpm
ica-2.2.67.centos6_2.x86_64.rpm
ica-2.2.67.centos6_3.i686.rpm
ica-2.2.67.centos6_3.x86_64.rpm
ica-2.2.67.centos6_4.i686.rpm
ica-2.2.67.centos6_4.x86_64.rpm
ica-2.2.67.centos6_5.x86_64.rpm
ica-2.2.67.rhel6_0.i686.rpm
ica-2.2.67.rhel6_0.x86_64.rpm
ica-2.2.67.rhel6_1.i686.rpm
ica-2.2.67.rhel6_1.x86_64.rpm
ica-2.2.67.rhel6_2.i686.rpm
ica-2.2.67.rhel6_2.x86_64.rpm
ica-2.2.67.rhel6_3.i686.rpm
ica-2.2.67.rhel6_3.x86_64.rpm
ica-2.2.67.rhel6_4.i686.rpm
ica-2.2.67.rhel6_4.x86_64.rpm
ica-2.2.67.rhel6_5.x86_64.rpm
ica-2.2.67.sles11_2.x86_64.rpm
ica-2.2.67.sles11_3.x86_64.rpm
icf_onboard.sh
ssh_host_rsa_key
version.txt
[root@ip-10-0-0-161 tmp]# ./icf_onboard.sh
Found RHEL 6.5 x86_64
Image is now ICF ready.
```

Step 4 To onboard the VM to Intercloud Fabric:

a) Log in to Intercloud Fabric.

b) Choose **Intercloud** > **Compute**.

c) In the **Compute** window, select the VMware cloud and click the **VM** tab.

d) Click **Onboard Cloud VM**.
The **Onboard Cloud VM** window appears.

e) Complete the following fields for **Onboard Cloud VM**:

Name	Description
Instance ID	The instance ID of the virtual machine to be onboarded.

Name	Description
VM Name	The name of the virtual machine to be onboarded.
Select VDC	Choose an existing VDC in Intercloud Fabric where the virtual machine will be onboarded. The virtual machine will be assigned network information (such as the VLAN ID, static IP address, and DHCP IP address) based on the network policy of the Intercloud Fabric VDC.
Select OS Version	Choose the OS version for the virtual machine to be onboarded.
Category	Choose the category for the virtual machine to be onboarded. Application categories let you override the network and system policies associated with the VDC.

f) Click **Proceed** to onboard the virtual machine to Intercloud Fabric.

g) To view the task status:

1. Choose **Organizations** > **Service Requests**.
2. Choose the **Service Request** tab and locate your service request number or enter the service request number in the **Search** field.
3. Click **View** to view detailed information such as workflow status, logs, and input information for the service request.

h) To view the **Onboard VM Cloud** report, choose **Intercloud** > **Compute** > ***public-cloud-name*** > ***virtual-data-center*** and then click the **VM** tab.
The following information is displayed:

- Instance ID
- Provider IP address
- Enterprise IP address
- Power state of the VM
- Virtual data center name
- Status of the tunnel with the Intercloud Fabric Switch in the cloud